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## 1996: Track Count Protocol

### I. Goals of Track Count Protocol.

- A. To provide an index to the population size of game animals (white-tailed deer, sambar deer, and feral hogs) inhabiting St. Vincent Island. The index will be based on the number of times game animals cross one-mile segments of dragged roads. This index can then be used in conjunction with other information on herd health and habitat condition to set hunt parameters. This will help maintain healthy herds that are in balance with the environment.
- B. To provide guidance to future staff so that counts can be performed in a consistent manner from year to year.
- C. To reduce bias from track count procedure on a long term basis so that the index can be useful as a management tool.

### II. Materials.

- A. Track counts will be made with the use of a four-wheel drive vehicle that is equipped with front-bumper mounted seating.
- B. The vehicle will tow a six foot wide drag constructed of metal pipe and heavy chain to obliterate previous tracks from the track count segments.
- C. The tracks will be entered into a multiple-tally denominator capable of handling all categories of tracks to be counted.

### III. Methods.

- A. The island is divided into four zones (Figure 1) to provide an index of herd size throughout the island.
  - 1. Zone 1 includes all roads West of Road 3.
  - 2. Zone 2 includes all roads South of but not including E Road and the section of B Road from E Road to the road from the cabin to West Pass that are West of but not including the road to West Pass and East of Road 3.
  - 3. Zone 3 includes all roads North of and including E Road, the section of B Road from E Road to the road to West Pass, and the road to West Pass that are South of Big Bayou and G Road from Road 6 to the eastern edge of the island and East of Road 3.

4. Zone 4 includes all roads on Dry Bar and roads North of and including G Road from Road 6 to the eastern edge of the island.

B. A random number generator selected three one-mile segments of road from each zone. We assigned intersections a unique number and direction for the selection process. Roads that are heavily vegetated and not conducive to track counting were excluded from the sample. The roads initially selected will be surveyed annually during the last two full weeks of October (Table 1).

TABLE 1

ZONE 1	ZONE 2	ZONE 3	ZONE 4
Intersection D-2 1 mile West (1.1)	Intersection A-Dune Rd. 1 mile East (2.1)	Intersection G-6 1 mile West (3.1)	Tahiti Bch Rd. and Sheepshead Bayou Rd. 1 mile South (4.1)
Intersection B-1 1 mile East (1.2)	Intersection B-5 1 mile East (2.2)	Intersection SH-6/2 1 mile West (3.2)	Intersection J-5 1 mile West (4.2)
Intersection A-0 1 mile East (1.3)	Intersection D-5 1 mile West (2.3)	Intersection E-3 1 mile East (3.3)	Intersection G-6 1 mile East (4.3)

Intersection codes designate where the 1 mile segment is measured from (i.e. A-0 is the intersection of A-Road and Road 0). The number in parentheses () indicates the segment code.

1. Each one mile segment will have a metal pole driven in the ground on the North side of the intersection where that segment is measured from. The pole will be placed on the east or west side of the intersection based on the direction the segment runs (i.e. If a segment runs to the east the start pole will be on the northeast corner of the intersection). Another pole will be placed on the north side of the road 1 mile from that pole at the other end of the segment. Where segments are adjoining, one post will mark the end of one segment and the beginning of the next. Each pole will be painted florescent orange or yellow.

2. Each one-mile segment will be inspected and graded as needed annually in early July and again in early October.
  - a. The road bed should be prepared so that the substrate is packed sand to facilitate identification of tracks.
  - b. The metal poles designating the start and end points of each segment will be inspected and maintained or replaced as needed annually during the second week of October.
  - c. Each segment should be dragged several times during the week prior to counting to remove pine straw and other debris.
- C. Two four day periods (Tuesday-Friday) during the last two full weeks of October will be sampled each year. During the sample period vehicular traffic should be minimized on the sample segments. All staff should be notified of alternate routes.
  1. On Monday of each week the sample areas will be dragged starting from the cabin at 0800 in the following order by segment code: 4.1, 4.2, 4.3, 3.1, 3.2, 2.1, 2.2, 2.3, 3.3, 1.1, 1.2, and 1.3 (see route on Figure 1). Several segments are run backwards to reduce travel.
  2. Each morning Tuesday through Friday at 0800 the route will be driven and all white-tailed deer fawn, total white-tailed deer, sambar deer, and feral hog tracks crossing the designated one-mile segments will be counted. The counting vehicle will travel at a rate of 5-8 mph. The drag will be attached to obliterate tracks for the next day. On Friday it is not necessary to pull the drag.
  3. The counting team will consist of 2-3 people. All team members will review this protocol and be certain the methods used are consistent with the protocol.
    - a. A truck driver.
    - b. The Wildlife Biologist or Robert Gay will be the primary counter and will ride in a seat attached to the vehicle front bumper. They will train a third person in track count methodology when needed.

- c. The third person will also ride in a seat on the front bumper of the vehicle. That person will be the Wildlife Biologist or Refuge Operations Specialist. They will enter the number of tracks called out by Robert Gay into the counter. Both positions are training level positions and the person will gain valuable experience by participating directly in the track count procedure.
4. All three of the species being sampled have similar tracks. It is assumed that animal behavior will be consistent over the long term. The following criteria will be used for counting tracks.
- a. Tracks will be divided into five categories: white-tailed fawn, total white-tailed deer, sambar deer, feral hog, and unknown. Unknown should be used only for tracks that cannot be identified. Often morphological and behavioral clues can help determine the species. The attached pages of "A Field Guide To Animal Tracks" will assist with the identification of feral hog and white-tailed deer tracks.
    - (1) Feral hog tracks tend to be nearly as wide as they are long and the front of the digits are rounded. Both deer species tend to have tracks that are noticeably longer than they are wide. The front of the digits are pointed.
    - (2) Sambar deer and large feral hogs often drag their hooves when walking.
    - (3) Even though young sambar deer may be similar in size to adult white-tailed deer they will usually be accompanied by their mother, so a set of sambar tracks near an unknown set may indicate they were made by a young sambar.
    - (4) Feral hogs will often root as they walk, so if the soil is pushed along a set of unknown tracks this may indicate they were made by a feral hog.
    - (5) Sambar tracks tend to appear proportionally longer than white-tailed tracks.

(6) White-tailed fawn tracks are noticeably smaller than other white-tailed tracks during late October.

b. Any set of tracks will be counted when it leaves the drag area. If a set of tracks leaves the drag area and returns, it will be counted again when it leaves the drag area. In the case of adjoining segments if a set of tracks goes from one segment into the next it will be counted in both segments.

c. The counter should request that the vehicle be stopped as needed so that accurate identification and counts can be assured.

5. The tracks should be entered into a multiple-tally denominator and tallied for each one-mile segment. At the end of each segment the count should be recorded on a track count data sheet (Figure 2) and the denominator should be reset.

6. If bad weather makes any portion of the track count unusable the entire count for that day will be cancelled. The day or days will be made up during the first suitable weather. The count can be extended into the weekend or be made the following week at the discretion of the Refuge Manager. The total days should equal eight each year and they should be done within the shortest period possible to reduce error due to seasonal changes in animal behavior and movement.

a. If a break in counting days occurs a drag only day must precede resumption of counting.

#### D. Data analysis.

1. Data analysis will be accomplished using SAS software.

2. The track count data for each species will be tallied daily and entered on a Track Count Summary Sheet (Figure 3). Tracks/mile will be calculated for each day by dividing the total tracks counted by the number of segments (12).

3. The number of tracks counted/day/species will be used to calculate an island sum, mean, standard deviation, and variance for the year by species. If desired the same procedure can be done using the data from each zone to calculate similar

statistics by zone. This will allow data from each zone of the island to be analyzed independently and allow for greater management flexibility.

4. A simple analysis of variance will be calculated.
5. The data should be compared to the previous years of data.
  - a. If there is a significant change, compare each zone between years and check if a particular zone is responsible for the difference. If so sections of the island may require closure during annual hunts.
  - b. Significant changes in the island total may dictate changes in the management of the annual hunts.
6. After several years of data have been collected, data trends can be analyzed using a polynomial contrast test or other test to look at trends in the population indices.

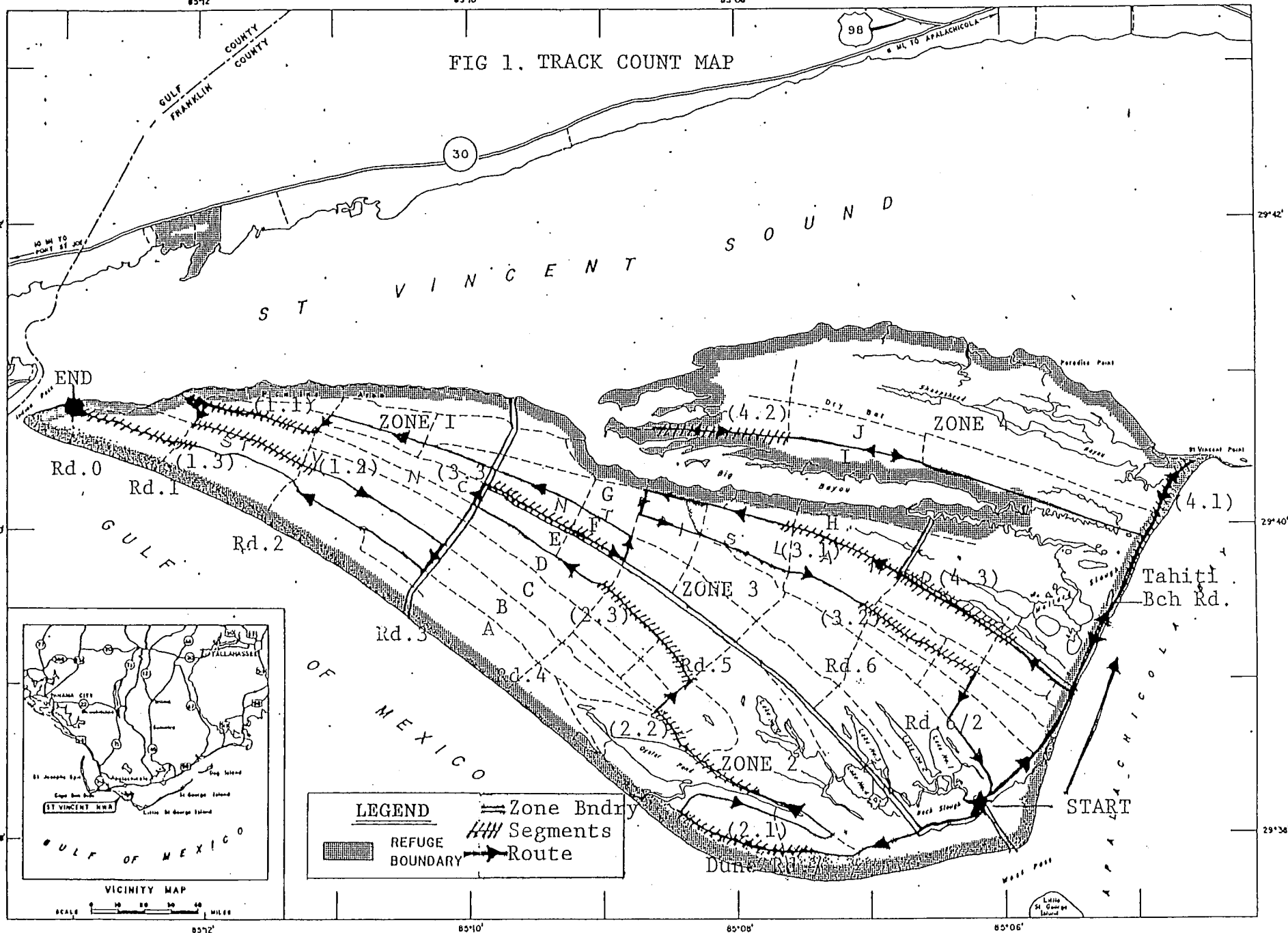
#### IV. Reports

- A. A summary will be given to the refuge manager within two weeks of the completion of the track count sample period each year. Data sheets, summary sheet, a log of the track count period, and recommendations for methodology and management will be included in the report.
- B. This protocol should be updated annually.

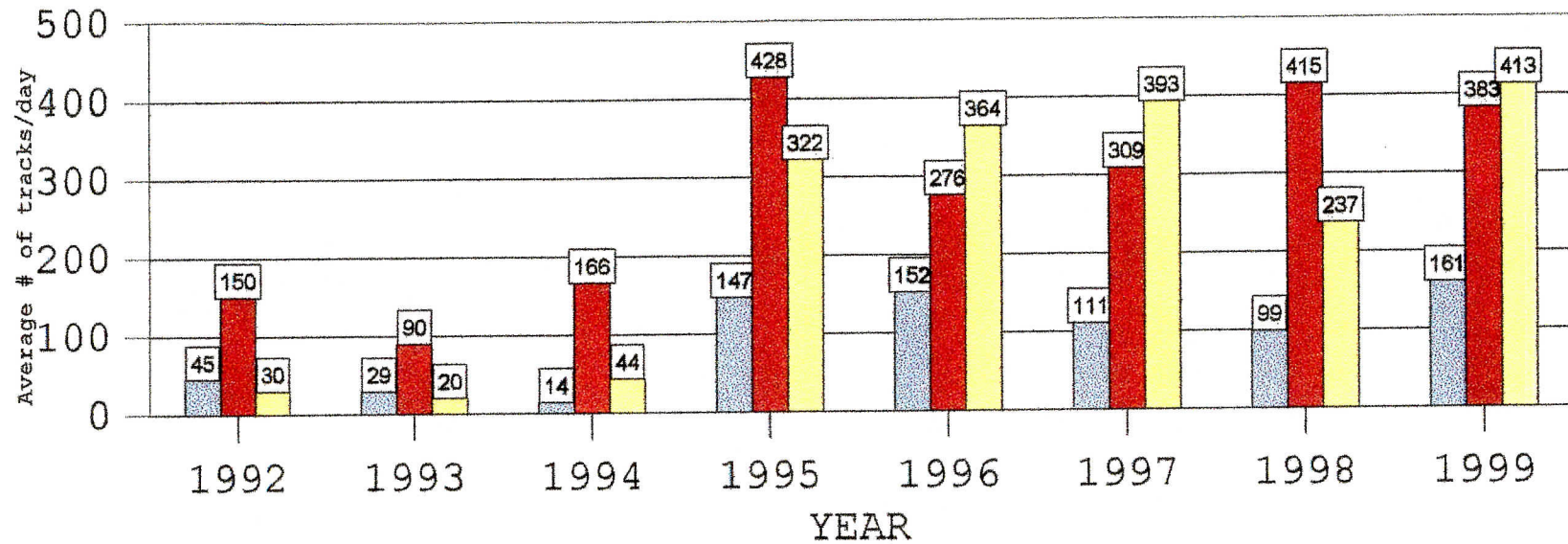
# ST. VINCENT NATIONAL WILDLIFE REFUGE

FRANKLIN COUNTY, FLORIDA

FIG 1. TRACK COUNT MAP



# YEARLY TRACK COUNTS



Sambar Deer



White-tailed Deer

Pigs



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
St. Vincent National Wildlife Refuge  
P.O. Box 447  
Apalachicola, Florida 32329



## QUALITY DEER MANAGEMENT ON ST. VINCENT NWR.

The mission statement for St. Vincent NWR is "to manage and preserve the natural barrier island and associated native plant and animal communities". Recreational hunting is a compatible use that the refuge uses as a tool to help manage our game populations in keeping with our mission statement. Data collected during our hunts showed that St. Vincent NWR archers and primitive weapons hunters with either sex permits were harvesting a considerable number of white-tailed deer that were spike bucks. In fact, about half of the deer they harvested were 1 ½ year old spike bucks.

Mortality of young, male, white-tailed deer would not naturally be this high. Natural mortality would select very young, old or weak animals. To manage the herd for a more natural sex and age structure we are instituting aspects of quality deer management. Harvest of all white-tailed spike bucks will be prohibited on our hunts. A spike buck is defined as any deer with hard antler visible above the hair line. Protection of spike bucks is needed to achieve the benefits of quality deer management and strict enforcement is needed for us to achieve these benefits quickly. Antler mass, number of antler points and body weight of bucks harvested on St. Vincent NWR are expected to increase with time. A more natural herd will result. We will also get the added benefits of increased hunter and visitor satisfaction from seeing and harvesting larger bucks.

Quality deer management should help us manage our white-tailed deer herd in keeping with our mission statement. The attached information details some of the effects and benefits of quality deer management.

Refuge Manager  
St. Vincent NWR

RECENT HARVEST SUMMARY ON ST. VINCENT NATIONAL WILDLIFE REFUGE

YEAR	ARCHERY HUNTERS	PRIMITIVE WEAPONS HUNTERS	DEER WHITETAIL (Buck) (Doe)		DEER SAMBAR (Stag) (Hind)		LARGEST POUNDS	MOST POINTS	FERAL PIGS NUMBER KILLED		LARGEST POUNDS
1985-86	194	218 284	17	19			94	8	25	134	
			33	25			115	8	20	175	
			33	41			118	10	27	130	
1986-87	206	305	3	4			94	7	13	133	
			30	13			123	8	38	166	
1987-88	125	95			5		506	10	8	103	
		147		3			80		10	122	
			9				124	8	18	117	
1988-89	92	122			2	4	460	6	13		
		182	3	4			82	2	9	122	
			28	14			154	7	14	150	
1989-90	118	136			4	2	627	5	38	168	
		278	3	6			131	5	29	131	
			37	24			158	10	70		
1990-91	137	154			4	5	722M	4	12	125	
		339	3	4			108	4	12	135	
			33	12			134	8	50	200	
1991-92	130	124			7	2	742M	6	14	152	
		211	8	6			112	5	18	132	
			13				116	8	44	179	
1992-93	135	109			1	2	453M	6	10	104D	
		210	9	8			112	4	11	137	
			20				113	9	21	150D	
1993-94	154	124			4	7	515M	8	5	120	
		247	8	6			84M	6	17	138	
			26	29			125M	7	24	142	
1994-95	146	114			7	3	465M	6	4	144E	
		212	10	8			130M	8	4	150	
			29	12			122M	6	23	210	
1995-96	127	27			6	3	482M	6	2	74E	
		165	4	10			80M	3	10	140L	
			11	12			129M	9	25	185L	
1996-97	111	135			1	0	190M	-	6	180L	
		185	5	10			91F	2	7	134L	
			27	10			137M	9	26	154D	
1997-98	86	125			2	3	556M	6	16	171L	
		176	4	9			113M	2	5	77E	
			13	13			135M	6	15	332L	
1998-99	66	136			5	2	498M	6	5	111L	
		155	4	7			91F	-	3	56E	
			18	19			121M	8	17	168L	
1999-00	81	119			5	4	477M	6	7	203L	
		141	1	6			82F	-	2	205L	
			23	18			135M	7	20	182L	

LARGEST DEER AND HOG TAKEN (1970 - PRESENT)

WHITETAIL: Whole Weight-----158 Pounds in January 1990  
Largest Racks-----10 Points in 12/70, 12/79, 11/80, 01/86, 01/90

SAMBAR: Whole Weight-----742 lbs. Male, November 1991; 460 lbs. Female, November 1990  
Largest Rack-----10 Points in November 1987

HOG: Whole Weight-----332 Pounds in January 1998

## ANIMALS HARVESTED ON HUNTS

